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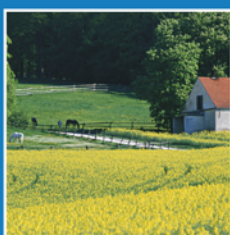
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Consumer-Oriented Approaches to Foster Resource Efficiency

Executive Summary

Summary of the results of Task 12 of the project
„Material Efficiency and Resource Conservation“ (MaRes)



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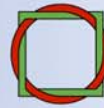
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Consumer-Oriented Approaches to Foster Resource Efficiency: Executive Summary

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1 Background, Objectives and Approach

In 2004, the resource consumption per capita in Germany reached 74 tons (Bringezu et al. 2004). This figure does not only cover direct resource demand, but also the ecological rucksack, that is all resources consumed along the lifecycle of the goods and services consumed – from production, over use to final disposal.

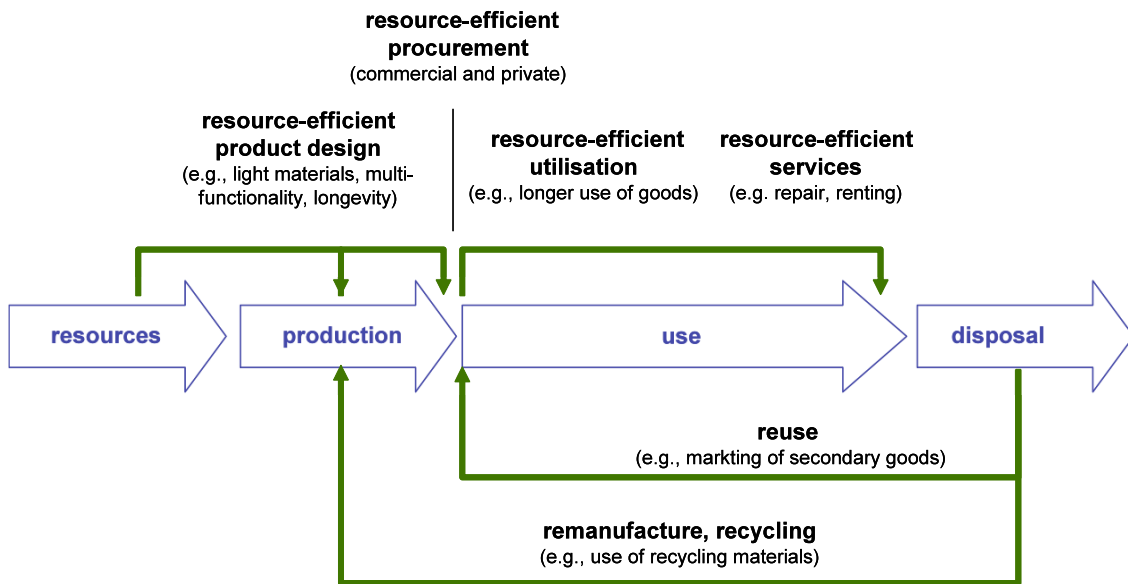
At the global level, resource consumption is unevenly distributed. If developing countries were to catch up and achieve similar consumption levels, by 2050 we would have seven times the resource consumption of today – based on the current projections of population growth. This would exceed the earth’s carrying capacity by far. Hence, an absolute decoupling of wealth development and resource demand needs to be realized very soon (Schmidt-Bleek 2007).

Against this background, the issue of sustainable consumption has received increasing attention in the last years. This includes, for instance, during the Marrakech Process of the United Nations (Cf. <http://esa.un.org/marrakechprocess/index.shtml>), the European Commission’s “Sustainable Consumption and Production and Sustainable Industrial Policy (SCP/SIP) Action Plan” (European Commission 2008) or the National Dialogue Process for the Promotion of Sustainable Consumption and Production (Cf. www.dialogprozess-konsum.de). In spite of these ongoing activities, the policy mix implemented in different countries to foster sustainable consumption patterns is not highly developed (e.g., OECD 2002, UNEP 2002, OECD 2008). This applies especially to measures dedicated to improve the resource efficiency of consumption.

Task 12 of the project “Material Efficiency and Resource Conservation (MaRes)” addresses this topic. It is dedicated to approaches that improve the resource efficiency of consumption patterns and it aims to develop policy instruments capable of enhancing material efficiency and resource conservation in consumption. By doing so, Task 12 refers to the “Strategy Resource Efficiency” of the German Federal Environmental Ministry that aims to assess the potentials for resource efficiency in lifestyles and consumption habits and to stimulate innovations in these areas (BMU 2007).

Consumer-oriented approaches to foster the resource efficiency are defined as policy measures that achieve a more sustainable use of natural resources. This is achieved through changing the demand and utilisation of goods by private households or by commercial customers. Fig. 1 illustrates possible strategies for improving resource efficiency along the product lifecycle.

Fig. 1: Strategic levers to enhance material efficiency and resource conservation along the product lifecycle



Source: own elaboration

Resource-efficient product design encompasses the use of efficient materials, the development of multi-functional products, and the supply of particularly long-lasting goods. *Resource-efficient procurement* addresses all activities of private or commercial customers increasing the sale of eco-efficient goods and services. The “use phase” covers, on the one hand, *resource-efficient usage* of products, for example through extended individual use, and, on the other hand, the sale of *resource-efficient services*, such as repair services or renting and sharing services. Finally, strategies of *reuse and recycling* address the end of the product lifecycle and aim to extend the use period of products or single components or materials.

In order to accomplish the objective of Task 12, numerous innovative policy instruments were first screened. Promising approaches were selected along criteria such as the potential for resource efficiency, novelty, and ease of implementation. Development options were sketched for each selected instrument (Scholl et al. 2009a, Scholl et al. 2009b). In the second step, single instruments were further elaborated and proposals for their implementation formulated. The areas addressed were the following the findings of which are presented in the next chapters:

- options for improving resource efficiency in everyday consumption,
- perspectives of resource-efficient services („consumption without ownership“)
- resource-efficiency prospects of the German eco label „Blue Angel“,
- resource-efficiency consulting of low-income households,
- internet-based consumer information and consumer advice on resource-efficiency.

2 Options for Improving Resource Efficiency in Everyday Consumption

Within private consumption, the biggest resource rucksack is borne by building and housing (45% for housing and household goods), leisure time and mobility (28% for traffic, accommodation and leisure time), and food (26%) (cf. Tab. 1). As a result, policy needs to especially address these areas.

Tab. 1: Resource consumption incl. rucksack of different consumption domains

Consumption domains	Resource consumption	
	1,000 tons	%
Food and drinks (incl. alcoholic drinks)	12.644.777	26
Home, water, electricity, gas, and other fuels	9.223.308	19
Traffic	9.140.765	19
Furniture, appliances, devices, and equipment for the household, incl. Maintenance	7.696.969	16
Accommodation and gastronomy	4.473.912	9
Leisure time, entertainment, cultural events	1.555.107	3
Clothing and shoes	1.177.867	2
Health care	1.028.759	2
Other goods and services	1.028.420	2
Tabacco	187.666	<1
Information	181.925	<1
Education	100.102	<1

Source: own elaboration based on Acosta-Fernández 2009; Acosta-Fernández 2007

Individuals will only be able to consume less resources when they know how this can be done in everyday life and when they are motivated to do this,. In energy consumption, there is a plethora of guidelines, brochures and internet information sites offering recommendations on how to save energy in the different domains. For resource efficiency, there is only little information available so far. Moreover, a target group and lifestyle specific presentation and communication of the existing advice are lacking.

The objective of studying the options for resource efficiency in everyday consumption was to identify concrete options for private households and to target them to different societal groups with different consumption styles (Kristof / Süßbauer 2009). At first, several options for everyday action were identified and grouped into basic strategies. Criteria for differentiating the options for action were developed then. There are two groups of criteria, one for characterising the options and their individual impacts and another one for distinguishing different target groups. Characterising options for action according to impact, socio-demographic, and psycho-graphic variables allows for clustering them with regard to the most suitable target groups.

For two groups, such sets of different everyday options were elaborated on: low income households and heavy users of advanced internet media (web 2.0). Such target group specific sets are key for designing successful consumption-oriented policies. Hence, they build the basis for the policy instruments developed in Task 12.

3 Consumption Without Ownership: Potentials of Resource-Efficient Services

The resource efficiency of consumption can be improved by using products rather than owning them. For instance, by renting rarely needed products rather than buying them (e.g. car sharing or renting of leisure time equipment) or by leasing high-value consumer goods and returning them to the supplier after final use (e.g., furniture rental). However, what is the potential for this kind of consumption without ownership? Answers to this question were developed in a short study within Task 12 comprising a literature review, an analysis of good-practice cases, expert interviews and an expert workshop (cf. Scholl et al. 2010). The study provides the following results for policy-makers.

Focus on selected product and service domains

Replacing products by services bears big potential for, but does not automatically improve the resource efficiency of consumption. Therefore, when communicating consumption without ownership it is important

- to focus on such consumption areas where the replacement of products by services provides obvious ecological improvement and,
- in all other cases, to convey the conditions (e.g. avoiding additional transportation with the rental and return of shared goods) under which sharing, renting and the like can be the more resource efficient alternative to individual ownership.

Distinguish commercial, non-commercial, and public services

Resource-efficient services can be supplied in different institutional settings. They can be market-based, commercial services and as such provide a business-case for consumption without ownership. Examples are Daimler’s mobility service “car2go” and the internet platform www.erento.com promoting rental services. Besides that, consumption without ownership is part of individual consumption practices, e.g. when lending or borrowing goods in the neighbourhood. An internet platform such as www.teilo.de provides an institutional frame for such private activities increasing the transparency and fostering the demand for collective use. Eventually, resource-efficient services can be supplied as public services. Examples are rent-a-bike systems such as “Vélib” in Paris, “Bicing” in Barcelona or “City Bike” in Stockholm which are supplied as an integral parts of the public transport system. The recent expansion of the Paris system to cars (“Autolib”) shows the potential for development of such approaches.

In Tab. 2 the three different types of resource-efficient services, their focus, examples and possible leverages for their proliferation are summarised.

Tab. 2: Overview of resource-efficient services („Ownership without consumption“) and supporting measures

Type	Focus	Examples	Supported by ...
Commercial services	Economic viability	Car rental, car sharing, renting of toys, leasing of furniture	Wirtschaftsförderung / Existenzgründung Sustainable development policies: increasing the transparency of available services
Non-commercial services	Social benefit (e.g., Nachbarschaftshilfe)	LETS, neighbourhood Verleihbörsen, internet platforms for brokerage	Sustainable development policies: Awareness-building (e.g., information, campaigning), Incentives for behavioural change
Public services	Social benefit (Daseinsvorsorge)	Bike rental as part of public transport	Municipal measures; strengthening communal economies

Link with current environmental policies

In the context of the recent amendment of the **EU Waste Framework Directive** and the amendment of the **German Act for Promoting Closed Substance Cycle Waste Management**, resource-efficient services can be regarded as waste prevention strategies: by using the current stock of products more intensively the amount of waste per unit of service gained from a product is diminished. The new European Waste Framework Directive calls upon the Member States to set up Waste Prevention Programmes by 2013. Consumption without ownership can be featured here as well, for example by stipulating a certain level of collective use in selected consumption domains in the formulation of waste prevention objectives or by covering all existing supporting measures for resource-efficient services in the assessment of the waste prevention policies in place.

Apart from waste management policies, the environmentally friendly design can be another leverage for fostering resource-efficient services. Through the amended Directive 2009/125/EC, the European **Eco Design** Directive has been extended from energy-consuming to energy-relevant products. In 2012, the European Commission will assess the impact of the Directive. The assessment shall reveal whether there is good reason for further extending the Directive's scope to non-energy-relevant products and a broader range of (material) resources. In this context, it should be analysed if and in what way the extension of the Eco Design Directive to services and, in particular, to resource-efficient services is beneficial and feasible.

A further important topic with respect to sustainability is the **product-based CO₂-footprint**. Possibilities for expanding the Memorandum Product Carbon Footprint (BMU et al. 2009) to include the service sector should therefore be explored.

At the initiation of the German Federal Environment Agency (UBA) a concept for a **Blue Angel Award** is presently being drawn up. If resource-efficient services were to be specifically included, this new and effective publicity instrument could in turn foster the concept of consumption without ownership among manufacturers, businesses, and consumers.

Additionally, the topic of consumption without ownership could be incorporated into the regularly conducted **survey Environmental Awareness** in Germany, in order to acquire a more precise estimate of the extent and acceptance of resource-efficient service providers.

Creating an innovative and easily communicable vision statement

In order to most effectively communicate these ideas – both in sustainability policy statements as well as in the end consumer target group, these concepts should be augmented by **innovative vision statements**, for example, “Live lightly, live resource-fully” or “Enlighten Your Life” (drawing on the motto “Simplify Your Life”). The intent is to communicate not only reduced resource consumption but also the relief from the obligations of property ownership. Ultimately, the goal is to establish a **new usership culture**.

Building strategic alliances

The fostering of resource-efficient services will require strategic alliances among the players involved; the specific nature of these will vary, depending on the sector, i.e., commercial, non-commercial, or public. Inasmuch as implementation of the consumption without ownership concept often involves a combination of technical and social innovations, a broad network of agents for change is important. The selection of the specific players to be brought in will depend upon the actual product or service sector involved.

4 Perspectives for a “Resource Angel” ecolabel

The current 88 Blue Angel award criteria address various protection goals: protection of water resources, climate, health, and other resources. Currently there are 16 product categories listed under protection of resources, e.g., paper recycling, reusable packaging, reconditioned toner cartridges, and rechargeable batteries. Strengthening the brand image of the Blue Angel in the area of resource protection is a worthwhile idea in several respects:

- In order to achieve the goal formulated in the National Sustainability Strategy of significantly increasing raw materials productivity, the ‘soft’ instruments of governmental environmental policy must also be directed toward this objective.

- The Blue Angel still enjoys a very high level of brandname recognition. A greater emphasis in the Blue Angel certification on aspects of resource protection would be an important contribution to building public awareness.

For the purpose of developing a “resource angel” various strategic options were identified in Task 12:

Products utilising resource-efficient materials

Metals such as gold, platinum, tin, and silver show a very high level of resource consumption (incl. the ecological backpack). Furthermore, important resources, such as indium, for example, which are utilized in the manufacture of LCD displays, flat-screen monitors and mobile telephones, are very scarce worldwide (e.g. Behrendt et al. 2007).

The resource angel could be used to single out those products demonstrating a very low level of resource consumption, as well as those avoiding the use of extremely scarce raw materials. For this purpose, a ranking of mineral and metallic raw materials, reflecting not only resource consumption (incl. the ecological backpack) but also the scarcity of the material, should be drawn up.

Products utilising secondary raw materials

Re-utilisation of materials is a central maxim of closed-loop recycling management in Germany. Utilising secondary raw materials in place of primary ones provides not only for a more efficient use of resources and waste reduction over the course of the entire life cycle, it also can reduce greenhouse gas emissions (e.g., Fraunhofer UMSICHT / Interseroh 2008).

The utilisation of secondary raw materials is already being promoted by various Blue Angel award criteria. It is recommended that further product areas be ascertained in which the utilisation of secondary raw materials is ecologically advantageous and economically viable; it then remains to be determined whether certification criteria for these products can be developed.

Products utilising renewable raw materials

To date, Blue Angel certification has not focussed on the use of renewable raw materials. An exception to this would be compostable containers for gardening and moulded parts consisting only of biodegradable substances, such as straw, cork, wood dust, or cornstarch (RAL-UZ 17). Greater attention to this topic for product groups such as paints and coatings, cements/adhesives, simple packaging (e.g., covers, carrying bags, sacks, and wrappers) or catering products (cups, plates, and cutlery) is conceivable. However, only sustainable options should be supported, as the ecological advantages of renewable materials is not always conclusive and often is only assessable in specific cases (e.g., Nova Institut 2010).

Products with an extended life cycle

The strategy behind **long-life products** is the generation of additional units of service from the environmental resources invested in a product and thus increased resource efficiency. This is particularly effective with consumer goods, where the resulting environmental impact derives almost entirely from the manufacturing process; examples include goods such as furniture, clothing, shoes, etc. So far, Blue Angel certification has only addressed product durability indirectly, in the sense of reparability and product quality. It is thus recommended that further product categories be ascertained for which a Blue Angel for above-average product lifespan might be appropriate – something along the lines of the Austrian seal of sustainability for repair-friendly and durable consumer goods (Pirkner et al. 2008).

The strategy of **re-utilisation** refers to products or goods that are re-used for the same original purpose (e.g., refillable glass containers, cloth shopping bags). **Remanufacturing**, on the other hand, involves bringing a used product into a quasi-new (refurbished) condition. Examples of remanufactured or refurbished capital goods include medical equipment, machine tools, and photocopiers. In the case of consumer goods, examples of remanufactured products include toner cartridges, automotive parts, automobile tyres, bicycles, furniture, and computers. Re-utilisation is, to some extent, already addressed in the Blue Angel criteria. Remanufacturing, however, presently does not play a large role with the Blue Angel. Although the perspectives for further development in the area of re-use are relatively minimal, expanding application of the remanufacturing principle in product groups such as furniture, compressors, and copiers is worthy of review; for this, the experiences of other countries, such as the United Kingdom, should be evaluated.

Resource-efficient services

The Blue Angel presently offers only a few certification criteria addressing service sector businesses, e.g., wet cleaning services, carbon dioxide cleaning, car sharing, and eco-friendly ships. Behrendt et al. (2001) report that opportunities for development in these areas do exist, but due to methodological problems with the criteria for certification and verification (among other things), they are limited. A look at other ecolabel systems (see Tab. 3) shows, however, that even beyond tourism and other leisure activity services, further opportunities for the Blue Angel ecolabeling of other services do exist. These should be systematically explored in a new feasibility study.

Tab. 3: Services addressed by selected ecolabeling systems

Country, Ecolabel	Service-related certification criteria for ...
European Union, the EU Ecolabel	hospitality industry, hotels, campgrounds
Austria, the Austrian Ecolabel	eco tickets for public transport, energy contracting, green investment funds, travel offerings, the hospitality industry, campgrounds, gastronomy, schools, and educational institutions
Scandinavia, the Nordic Swan	cleaning services, hotels/hostels, laundry services, printers, restaurants, groceries, car wash facilities
Sweden, “Good Environmental Choice”	energy providers, groceries, transportation service providers
Czech Republic, “Environmentally Friendly Product”	hospitality industry, hotels, campgrounds, schools, educational institutions
Canada, the EcoLogo	car wash facilities, hospitality industry, hotels, climate-neutral air travel, investment funds for electrical energy from renewable resources
USA, the Green Seal	cleaning services (commercial and retail), fleet vehicle maintenance, hospitality industry, restaurants/catering

Source: Data compiled by authors

5 Resource-efficiency counselling for socially disadvantaged households

In Task 12, the promotion of community-oriented resource efficiency counselling for special target groups was identified as an important policy option (see Scholl et al. 2009a). Using the example of providing energy efficiency counselling to socially disadvantaged households, the goal of the subsequent steps was to determine what possibilities there might be for the integration of resource efficiency topics. This method of consumer affairs counselling was chosen because it represents an outreach approach and places resource efficiency counselling under the primacy of economic advantageousness.

Contact was established with two agencies providing advice and counselling services to socially disadvantaged households: the Cariteam-Energiesparservice (Cariteam Energy Conservation Services) in Frankfurt, and the EnergieSparProjekt (ESP), an energy conservation project that is a part of the energy debt prevention services provided by the Nuremberg department of social services.

In the course of two meetings with the management of Cariteam, initial insights were obtained regarding the potential for integration of a resource efficiency module into the range of currently offered services. Following an initial meeting with the managers and staff of ESP in Nuremberg, a workshop was arranged at which specific options for action were discussed. This led to the preparation of talking points or discussion aids, which are being used with success locally by the Nuremberg counsellors; currently an informational pamphlet for distribution to the client households is also being drawn up.

With this difficult-to-reach target group in particular, it is extremely helpful in overcoming the most common challenges (lack of information, expertise, motivation, or ability to act and, to some extent, language barriers) to have in place an already well-established and trusted advisory relationship.

Previously, such outreach counselling approaches had focussed only on the conservation of water and energy and on the specific target group, socially disadvantaged households. Further resource efficiency measures, e.g., the measures for saving energy in everyday life addressed in the talking points (rechargeable batteries instead of disposables, showering instead of bathing, tap water rather than mineral water, rinsing in the basin rather than with running water, fresh rather than frozen produce) can also be easily integrated into local advising and counselling measures suitable to the intended target group.

In conjunction with the newly reworked energy efficiency counselling services, incorporation of resource efficiency would also be quite a worthwhile idea. The services offered must remain free of charge; the counselling must be personalised and on-site and should incorporate examples from the various resource areas.

The counsellor thus needs to be well-versed in the most important resource efficiency topics. In support of this, suitable training and qualification materials for the counsellors should be prepared by the BMU / UBA and made available in the local counselling offices. Important here is that specific and clear recommendations for action are given. For this purpose, the options for action developed in Task 12 (see above) could serve as a point of departure.

Households with mid- to upper-level incomes are presumably somewhat less concerned about the need for cost savings; in such cases there may be other applicable recommendations that would be largely irrelevant to the socially disadvantaged household. There is a need here for further research, as other attributes, such as image and attitude towards environmental concerns, are likely to come to bear.

6 Internet-based consumer information and counselling on resource efficiency affairs

In the first work phase of Task 12, the development of possibilities for cooperation between Internet-based consumer counselling concerns and consumer-related environmental policy in the area of resource efficiency was identified as an important policy option. This option was further explored in the course of a workshop at the BMU attended by various experts and other interested parties in the area of consumer counselling, as well as Web 2.0 players, and BMU/UBA participants. The following topics were addressed in three blocks: opportunities for cooperation in the area of online communities, in the area of online resources or calculators, and in the area of Web-based service and product testing. These three avenues differ with respect to the objectivity of the information, the possibilities for interactivity with users, and in the poten-

tial influence of commercial interests; each offers a different point of access to the environmental players in the area of consumer information and counselling in Web 2.0.

Web 2.0 makes possible the merging together of the production and consumption of information. This is reflected in the transformation of communication from a one-sided model (information provider/expert advises information recipient/lay person) to an interactive Web 2.0 model, in which all parties may participate as both providers and recipients – with each of us, essentially, having the opportunity to become a “consumer expert”. New forms of both independent and commercial counselling are continually being developed in Web 2.0. Thus online merchants in Second Life are able to successfully offer “face-to-face” product consulting, with one consumer advising another.

Internet communities tend to be characterised more by a subjective information quality and a high level of interaction. The degree of commercial orientation varies. Internet-based product tests, in comparison, tend to deliver information of a more objective nature and mid-level interaction. Here, too, there may be commercial aspects or elements. The many online information calculators likewise tend to be more objective in nature; the possibilities for interaction so far generally have been minimal and they are for the most part not commercially oriented.

With respect to the question of how consumer awareness can be influenced by means of environmental policy measures and transformed into more resource-efficient consumer behaviour by means of appropriate incentives, a distinction must be made between a general consciousness-raising – an awareness of material efficiency and resource conservation issues – and more specific approaches that actually foster the use of resource-efficient products and behaviour. In the process, the intent should not be to address resource efficiency as a special issue, but rather to integrate it into everyday consumer decision-making and behaviour. Internet-based consumer affairs counselling can only be effective when the use of such instruments and tools (online calculators, forums, guides, etc.) by the target group for various consumer matters becomes repeat behaviour – at the point where a certain “stickiness” develops.

Web 2.0 offers the possibility of mobilising so-called **participatory consumers** for responding to resource queries. This can be defined as the intersection of the LOHAS and the Web 2.0 user: average age of 46, a well-educated, intensive media user, and well-informed (Zucker Kommunikation / SKOPOS 2009). This consumer group can provide a certain multiplier and opinion-maker function for the topics of material efficiency and resource efficiency. Particularly within the context of peer-to-peer consumer counselling and user-generated content, the participatory consumer can serve as a useful source of information on resource efficiency. Peer-to-peer communication is one of the most important information sources for consumers today, and with respect to perceived credibility and authenticity, it enjoys a clear advantage over “official” Web sites. Furthermore, Web 2.0 offers the possibility to strengthen the direct dialog between business and consumer.

So far, however, there has been a lack of conceptual as well as empirical work that could provide **a measure of the behavioural relevance of Internet-based consumer**

information and counselling. In the case of material and resource efficiency, this is made more difficult by the lack of agreement on a single indicator or dependant variable.

The workshop “Promoting resource efficiency in the context of consumer counselling in Web 2.0” has made clear the interest in an exchange of ideas among the players. Thus the following recommendations are made:

The dialogue and exchange of ideas between BMU / UBA and the relevant players should be continued and expanded, for example, as a part of the **National Dialogue Process** – with content materials prepared, accompanied and documented by a project team.

Furthermore, an in-depth analysis of the topic of resource policy in Web 2.0 and newer communication forms for various target groups (e.g., use of social networks for communication) would be beneficial; likewise, the preparation of a **strategy paper – “Resource policy in Web 2.0”** as a conceptual further development of the results obtained from the workshop is also recommended.

BMU/UBA can serve here in the role of data provider in making available suitable information to the various Internet service offerings. Questions thus arise as to the need for data and data availability and, above all, the most suitable interface between data provider and data user (data format, usage rights, etc.). This is an issue – **the interface issue** – that should be addressed in future projects. A first step towards a solution could possibly be found in cooperation with the Blue Angel ecolabel, which represents an important platform for product-related environmental data.

In the area of **online calculators**, the Web portal “One Did It” represents a good starting point for further development. The portal is the only resource-oriented online calculator in Germany. In further conceptual development and expansion of content to come, it would be worthwhile to include the courses of action for resource efficiency in consumer daily life that were developed in Task 12.

7 Outlook

7.1 General recommendations for action

Develop multi-impulse approaches

Drawing on the British 4-E model (*enable, encourage, engage, exemplify*; SDC / NCC 2006), we need to:

- **enable and facilitate** consumer- and customer-relevant approaches to increasing resource efficiency, e.g., through appropriate offerings of information and counselling,
- **provide incentives**, e.g., through financial measures,

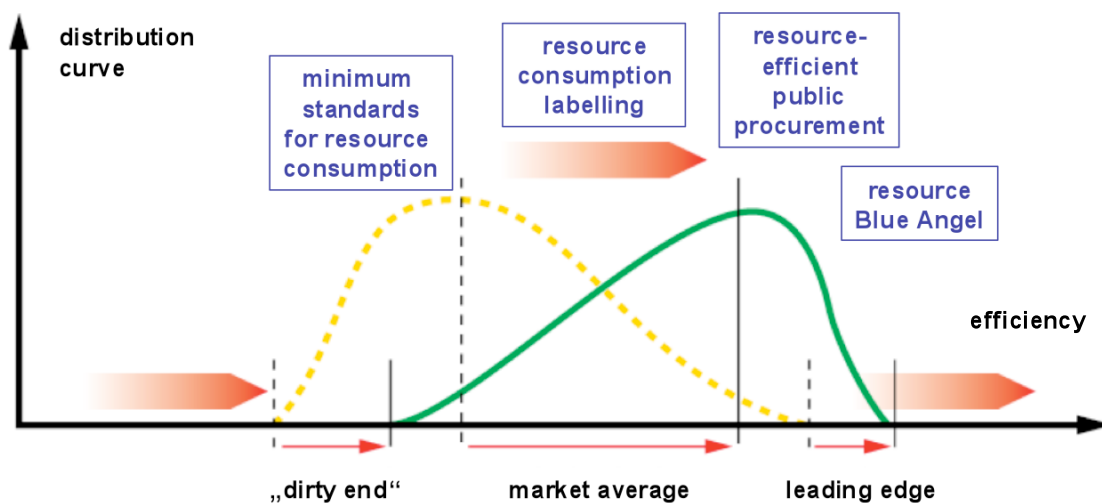
- **engage and mobilise**, e.g., by making available a suitable infrastructure for collective action and
- **provide good examples** for the feasibility of resource-efficient consumption.

The consumer- and customer-oriented approaches for increasing resource efficiency in Task 12 represent just one aspect of such a **multi-impulse approach**. Informative approaches are a priority in the Task, and thus the aspect of “enable & facilitate” is fully engaged. Furthermore, the action points for increasing resource efficiency in everyday consumption, in particular, as well as the Internet-based communication of “resource-efficient consumption,” provide excellent opportunities for demonstrating good examples of feasibility. The dimension of “engage & mobilise” is also targeted by Internet-based resource efficiency counselling measures as well as approaches in the area of consumption without ownership. Instruments such as the resource angel certification or resource efficiency outreach services for socially disadvantaged homes, in contrast, offer (relatively weak) incentives for resource efficient behaviour.

Develop resource-efficient product policy

The “classic” product policy instruments need to be further developed with respect to resource efficiency (see Fig. 2).

Fig. 2: The product policy instruments for fostering resource efficiency



Source: Developed from Kristof / Henricke 2008

While the Blue Angel and in part government procurement procedures, too, can play a vanguard role in matters of resource efficiency, a mandatory resource consumption label could aim to gradually increase average efficiency in the marketplace. Minimal standards with respect to resource efficiency could eventually lead to the disappearance of non-resource-efficient products from the marketplace.

Expand base strategies

The courses of action and base strategies for resource-efficient consumption developed in Task 12 (see Tab. 4) should be augmented by further development of the policy field.

Tab. 4: Base strategies for resource-efficient consumption

Consumption phase	Approach	Base strategy for increasing resource efficiency
Consumption decisions	Scrutinizing needs	<ul style="list-style-type: none"> • Reflection on personal needs • Information searches and acquisition as well as assessment • Discussions about consumption in social arenas
Shopping	Informed shopping	<ul style="list-style-type: none"> • Resource-light products (i.e., products with a light-weight ecological backpack, with minimised material, energy, water, and land use at all stages of manufacture) • Small and/or light-weight products • Multifunctional and/or modularly utilisable products (technologically upgradable or expandable as needed) • Long-life products (timeless design, robust manufacture, easily repairable) • Re-used, re-manufactured, and recycled products • Packaging minimisation
Use	Reduced consumption	<ul style="list-style-type: none"> • Reduced consumption in the utilisation phase (i.e., reduction of direct resource consumption during utilisation) • Waste prevention (e.g., avoiding disposable tableware)
	Using, not owning	<ul style="list-style-type: none"> • Renting (e.g., tool leasing or photocopier leasing), sharing (e.g., car-sharing) or pooling (e.g., laundry service) • Private lending, sharing and exchange (e.g., equipment, carpools) • Virtualisation (e.g., electronic data rather than physical products such as CDs, books)
	Longer use	<ul style="list-style-type: none"> • Product re-use • Self-maintenance, cleaning, and repair of products • Using maintenance and repair services
Disposal	Return	<ul style="list-style-type: none"> • Returning or recirculating recyclable and still usable products

Source: Kristof / Süßbauer 2009

7.2 Area-specific recommendations for action

In Task 12 various options for consumer- and customer-relevant resource policy were identified (see above). For each of these options there are various recommendations for action, and these are summarised in tab 5.

Task 12 also furthermore recognised the need for the following **additional research**:

- Preparation of solid fundamental base data for consumer and lifestyle-specific resource consumption (incl. the ecological backpack) as part of the further development of current work (e.g., Acosta-Fernández 2007, Kotakorpi et al. 2008, Global 2000 / SERI 2009).

Tab. 5: Opportunities for implementing selected policy options

Policy option	Recommendation for action
Using, not owning	<ul style="list-style-type: none"> • Concentration on product and service fields offering a clear resource efficiency yield • Distinguishing between commercial, non-commercial, and public services • Tie-ins to current environmental policy developments (e.g., waste prevention programmes, ecodesign guidelines, product carbon footprint) • Development of vision statements as an element of a new utilisation culture (e.g., “Lighten your carbon footprint and enlighten your life”). • Formation of sector-specific strategic implementation alliances.
Ecolabel for resource efficiency	<ul style="list-style-type: none"> • Products from resource-efficient materials • Products from secondary raw materials • Products with an extended life cycle (long-life, re-usable, remanufacturable) • Resource-efficient services • (Products from renewable raw materials)
Resource efficiency counselling for socially disadvantaged households	<ul style="list-style-type: none"> • Outlining the financial advantages of resource-efficient consumption • Further development of the talking points on resource-efficient consumption for use in existing (energy-conservation) counselling service programmes. • Model trials with the talking points (e.g., as part of the EnergieSpar-Projekt in Nuremberg).
Internet-based resource efficiency counselling	<ul style="list-style-type: none"> • Continuation of the dialogue between the relevant players, e.g., as an aspect of the National Dialogue Process • Preparation of a strategy paper: “Resource policy in Web 2.0” • Improvement of the interface between existing product-oriented environmental information systems (e.g., the Blue Angel) and Internet-based information offerings • Further development and promotion of online resource calculators

Source: Kristof / Süßbauer 2009

- Systematic treatment of the options for action and good practice for resource efficiency in everyday consumption (particularly in the area of “using, not owning”) on the basis of the overview developed in Task 12 and as a possible contribution to a meta-portal for sustainable consumption.
- Development of packages of integrated measures for increasing resource efficiency in selected areas of consumption, e.g., nutrition, home and living, or mobility.

- More extensive investigation and development of innovative approaches to increasing resource efficiency that focus primarily on informing and mobilising consumers (such as Internet-based peer-to-peer dissemination). Specification of the potential roles for environmental players beyond the “classic” product policy instrument.

8 References

- Acosta-Fernández, José (2007): Identifikation prioritärer Handlungsfelder für die Erhöhung der gesamtwirtschaftlichen Ressourcenproduktivität in Deutschland; Projektergebnisse im Rahmen des Projekts „Steigerung der Ressourcenproduktivität als Kernstrategie einer nachhaltigen Entwicklung“; www.ressourcenproduktivitaet.de
- Acosta-Fernández, José (2009): Mitteilung zu Daten
- Behrendt, Siegfried / Erdmann, Lorenz / Henseling, Stefan / Kreibich, Mirco (2001): Erarbeitung der fachlichen Grundlagen für verbrauchernahe Dienstleistungen (Auswahl, Kriterienentwicklung). UBA-Texte 75/01; Berlin
- Behrendt, Siegfried / Kahlenborn, Walter / Feil, Moira / Dereje, Cornelia / Bleischwitz, Raimund / Delzeit, Ruth / Scharp, Michael (2007): Seltene Metalle. Maßnahmen und Konzepte zur Lösung des Problems konfliktverschärfender Rohstoffausbeutung am Beispiel Coltan. UBA-Texte 08/07; Dessau
- BMU (2007): Strategie Ressourceneffizienz. Impulse für den ökologischen und ökonomischen Umbau der Industriegesellschaft; Berlin
- BMU / UBA / Öko-Institut (2009): Memorandum Product Carbon Footprint. Positionen zur Erfassung und Kommunikation des Product Carbon Footprint für die internationale Standardisierung und Harmonisierung; Freiburg
- Bringezu, Stefan / Schütz, Helmut / Steger, Sören / Baudisch, Jan (2004): International comparison of resource use and its relation to economic growth: the development of total material requirement, direct material inputs and hidden flows and the structure of TMR; *Ecological economics*, 51 (2004), 1/2, 97-124
- European Commission (2008): Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan (SEC (2008) 2111), Brussels
- Fraunhofer UMSICHT / Interseroh (2008): Recycling für den Klimaschutz. Ergebnisse der Studie von Fraunhofer UMSICHT und INTERSEROH zur CO₂-Einsparung durch den Einsatz von Sekundärrohstoffen, Köln
- Global 2000 / SERI (2009): Ohne Maß und Ziel? Über unseren Umgang mit den natürlichen Ressourcen der Erde; Heidenreichstein
- Kotakorpi, Elli / Lähteenoja, Satu / Lettenmeier, Michael (2008): Household MIPS. Natural resource consumption of Finnish households and its reduction. *The Finnish Environment* No. 43/2008; Helsinki
- Kristof, Kora / Hennicke, Peter (2008): Impulsprogramm Ressourceneffizienz: Innovationen und wirtschaftlicher Modernisierung eine Richtung geben: ein Vorschlag des Wuppertal Instituts. Input aus dem MaRes-Projekt für die 3. Innovationskonferenz „Faktor X: Eine Dritte industrielle Revolution“, 22.10.2008 in Berlin. Ressourceneffizienz Paper 7.2; <http://ressourcen.wupperinst.org>
- Kristof, Kora / Süßbauer, Elisabeth (2009): Handlungsoptionen zur Steigerung der Ressourceneffizienz im Konsumalltag; Paper zu Arbeitspaket 12 des Projekts „Materialeffizienz und Ressourcenschonung“ (MaRes); RessourceneffizienzPaper 12.2, <http://ressourcen.wupperinst.org>

- Nova Institut (2010): Entwicklung von Förderinstrumenten für die stoffliche Nutzung von nachwachsenden Rohstoffen in Deutschland (Kurzfassung). Volumen, Struktur, Substitutionspotenziale, Konkurrenzsituation und Besonderheiten der stofflichen Nutzung sowie Entwicklung von Förderinstrumenten, Mai 2010; Hürth
- OECD (2002): Towards Sustainable Household Consumption. Trends and policies in OECD countries; Paris
- OECD (2008): Promoting Sustainable Consumption. Good Practices in OECD Countries; Paris
- Pirkner, Georg / Seidl, Sabine / Winkler, Josef / Hackl, Norbert / Eisenriegler, Sepp / Gizdavic, Nebojsa / Weiß, Norbert (2008): Nachhaltigkeitssiegel für gut reparierbare Produkte. Etablierung eines Nachhaltigkeitssiegels für reparaturfreundlich konstruierte Elektro(nik)-Geräte (Weiß- und Braunware) zur Orientierung der KonsumentInnen bei Kaufentscheidungen; Wien. Berichte aus Energie- und Umweltforschung 21/2008
- Schmidt-Bleek, Friedrich (2007): Nutzen wir die Erde richtig? Die Leistungen der Natur und die Arbeit des Menschen; Frankfurt am Main
- Scholl, Gerd / Baedeker, Carolin / Bietz, Sabine / Kristof, Kora / Otto, Siegmund / Onischka, Matthias / Reisch, Lucia / Rubik, Frieder / Schmitt, Martina (2009a): Konsumenten- und kundennahe Instrumente der Ressourcenpolitik. Zusammenfassung der Politikoptionen. Arbeitspaket 12 des Projekts „Materialeffizienz und Ressourcenschonung“ (MaRes), Arbeitsschritt 12.1. Version 2.0 vom 08.07.2009; Wuppertal
- Scholl, Gerd / Baedeker, Carolin / Bietz, Sabine / Kristof, Kora / Otto, Siegmund / Onischka, Matthias / Reisch, Lucia / Rubik, Frieder / Schmitt, Martina (2009b): Konsumenten- und kundennahe Instrumente der Ressourcenpolitik. Hintergrundpapier zur Zusammenfassung der Politikoptionen. Arbeitspaket 12 des Projekts „Materialeffizienz und Ressourcenschonung“ (MaRes), Arbeitsschritt 12.1. Version 2.0 vom 08.07.2009; Wuppertal
- Scholl, Gerd / Schulz, Lasse / Süßbauer, Elisabeth / Otto, Siegmund (2010): Nutzen statt Besitzen – Perspektiven für ressourcen-effizienten Konsum durch innovative Dienstleistungen. Paper zu Arbeitspaket 12 „Konsumenten- und kundennahe Ressourcenpolitikoptionen“ des Projekts „Materialeffizienz und Ressourcenschonung“ (MaRes); Wuppertal
- SDC / NCC (2006): I will if you will. Towards sustainable consumption; London
- UNEP (2002): Sustainable Consumption. A Global Status Report; Nairobi
- Zucker Kommunikation / SKOPOS (2009): Grundlagenstudie “Der Partizipative Konsument (PARKO)“. Empirische Überprüfung von 10 Kommunikationsregeln; Berlin; <http://issuu.com/zuckerberlin/docs/studie-der-partizipative-konsument-parko> (12.01.2010)